Appendix 1 [posted as supplied by author]

Justification for adaptations to the Newcastle-Ottawa Scale

The association between smoking cessation (exposure) and mental health (outcome) in this review affects the validity of NOS quality scores. Therefore, the current review uses an adapted version of the NOS. The adapted version's maximum rating is five stars. The following adaptations have been made (see Table A for adapted version).

Adaptation one: ascertainment of exposure

The NOS aims to assess the validity of exposure ascertainment. It cites use of secure records, structured interview and written self-report as methods to establish the cohorts' exposure status. The current review's exposure is smoking status. Smoking status is principally established via self-report or biological verification; rather than by secure records or structured interviews. Thus, this section was adapted to include only these methods of ascertainment of exposure status. In smoking-cessation research some participants claim to be non-smokers when they are still smoking, this can overestimate the number of people quit in a study (1). The most accurate way to ascertain smoking status is via biological verification (2). Valid methods of biological verification were considered as: expired air carbon monoxide (CO) or level of continine concentration (saliva, urine or plasma). If a study reported bio-verified smoking status it was awarded one star and no stars if only self-report was used or if there was no description of how the exposure was ascertained.

Adaptation two: demonstration that outcome of interest was not present at start of study

The NOS awards a star if the outcome of interest was not present at the start of the study. However, this is based upon the diagnosis of the presence or absence of a disease. The current review is not assessing a dichotomous outcome. Our outcome was the change in mental health as measured by continuous scales. Thus, it is not possible for a study to demonstrate that change in mental health was present at the start of the study. Accordingly, this item was not included in the adapted version of the NOS.

Adaptation three: comparability of cohorts on the basis of the design or analysis

The NOS awards a star if the study controls for the "most important factor" which is likely to influence the main outcome, and one star if the study controls for an additional factor which is likely to influence the main outcome. However, not all studies included in the current analysis investigated change in mental health as their primary outcome, thus not all studies controlled for covariates which influence mental health. Accordingly, this item was not included in the adapted version of the NOS.

Adaptation four: assessment of outcome

The NOS awards a star if the study's outcome has been assessed via an independent blind assessment or record linkage, and awards no star if the outcome has been assessed via self-report or no description. The outcome for the current review could only be assessed via a self-report questionnaire or a structured-interview. Firstly, for assessment of mental health to be clinically useful, psychometric assessments need to be standardized (3). Secondly, psychological questionnaires cannot be blindly assessed, as the participant completes the answers. Thus we have not considered independent-blind assessment in the self-report category. Structured interviews can be assessed by someone who is blinded to study hypotheses, thus this has been considered for outcomes assessed via interview. Accordingly, one star was awarded for use of a standardised self-report questionnaire, or standardised interview schedule with blind assessor, and zero stars were awarded for use non-standardised self-report questionnaires, non-standardised interview schedules and standardised interview schedules with an un-blinded assessor. In the case that a study used a standardised self-report questionnaire and a standardised interview schedule, only one star was awarded; as use of both types of outcome assessment does not improve the study's quality for the purpose of this review.

Adaptation five: was follow-up long enough for outcomes to occur?

The NOS awards a star if the study's follow-up was long-enough for the outcome to occur. However, we included studies that assessed mental health is assessed after the end of the withdrawal period (six weeks). Thus our inclusion criterion ensures that the follow-up is long enough for outcomes to occur. Accordingly, this item was not included in the adapted version of the NOS.

Adaptation six: determining an attrition threshold

The NOS awards a star if a study reports that all subjects were accounted for at follow-up. The NOS also awards a star if "a small number" of subjects are lost to follow-up, or if the study provides a description of those who were lost. The scale allows the researcher to select their own adequate rate (%) of attrition. There are no empirical studies which determine an agreed attrition threshold for observational studies of smoking populations. Other quality assessment tools for observational studies recommend the use 80%-100% follow-up to determine the lowest attrition-bias, and 60-79% to determine moderate attrition-bias (4). Lundth and Gotzsche (5) conducted a review of trials in aim to provide a list of recommendations for assessing the methodological quality of studies. They reported that the use of arbitrarily defined cut-off points is not empirically justified. Fewtrell et al (6) conducted a review of nutritional interventions and concluded that there are no universally agreed criteria for acceptable follow-up rates in nutrition cohort studies.

Thus, there is no empirical evidence to adopt a specific cut-off percentage for determining attrition-bias. However, there is empirical evidence that drop-out from a study may affect the study's results (7), in turn affecting the study's validity. Although there is no agreed cut off, a method of determining attrition bias is necessary. Thus GT, PA and AM discussed different cut-off points and factors which may influence attrition. A consensus was made that if loss to follow-up was >30% overall or >20% difference between the arms then there is a possibility of bias. Accordingly if there was a complete follow-up or if loss to follow-up was less than 30% overall and there was a difference of less than 20% between the arms the study was awarded one star. If the study did not meet these criteria or if there was no statement on follow-up rates the study did not receive a star.

Table A: Newcastle-Ottawa quality assessment scale cohort studies (NOS) adapted version			
		Star awarded system	**Star (*) awarded**
Study's selection criteria			
1) Representativeness of the exposed cohort (maximum 1 star)	a) truly representative of the average _____ (describe) in the community	*	
	b) somewhat representative of the average _____ in the community	*	
	c) selected group of users eg nurses, volunteers	(no star)	
	d) no description of the derivation of the cohort	(no star)	
2) Selection of the non exposed cohort (maximum 1 star)	a) drawn from the same community as the exposed cohort	*	
	b) drawn from a different source	(no star)	
	c) no description of the derivation of the non exposed cohort	(no star)	
3) Ascertainment of exposure (maximum 1 star)	a) bio-verified smoking status	*	
	b) smoking status verified only by self report	(no star)	
	c) no description	(no star)	
Study's outcome criteria			
1) Assessment of outcome (maximum 1 star)[1]	a) standardised self-report questionnaire	*	
	b) standardised interview schedule with blind assessor	*	
	c) non-standardised self-report questionnaire or non-standardised interview schedule	(no star)	
	d) no description	(no star)	
2) Adequacy of follow up of cohorts (maximum 1 star) [2]	a) complete follow up - all subjects accounted for □	*	
	b) subjects lost to follow up unlikely to introduce bias - small number lost - > ____ % (select an adequate %) follow up, or description provided of those lost) □	*	
	c) follow up rate < ____% (select an adequate %) and no description of those lost	(no star)	
	d) no statement	(no star)	
		Final Score	

[1] In the case that a study has used a standardized self-report questionnaire and a standardized interview schedule, only one star will be awarded. This is as use of both outcome assessments will not improve the study's quality for the purpose of this review.
[2] Describe based on attrition from enrolment to final follow-up

Table B: References of articles excluded based on examination of full text and reasons for exclusion	
Reference (n=166)	**Reason for exclusion**
Abrams DB, Monti PM, Pinto RP, Elder JP, Brown RA, Jacobus SI. Psychosocial stress and coping in smokers who relapse or quit. Health Psychology 1987;6(4):289-303.	No baseline measures of mental health taken prior to attaining/not attaining abstinence.
Abrantes AM, Palm KM, Strong DR, Brown RA. Cigarette smokers who have difficulties quitting: The role of negative mood. Medicine & Health, Rhode Island 2006 May;89(5):169-71.	Review of cessation interventions.
Acri JB, Grunberg NE. A psychophysical task to quantify smoking cessation-induced irritability: The reactive irritability scale (RIS). Addictive Behaviour 1992 Nov;17(6):587-601.	Mental health outcome was measured during the withdrawal period.
Ahlberg J, Savolainen A, Rantala M, Lindholm H, Kononen M. Reported bruxism and biopsychosocial symptoms: A longitudinal study. Community Dentistry & Oral Epidemiology 2004 Aug;32(4):307-11.	No mental health outcome.
Allen AM, Prince CB, Dietz PM. Postpartum depressive symptoms and smoking relapse. American Journal of Preventative Medicine 2009 Jan;36(1):9-12.	Relapse as the outcome.
Almeida OP, Garrido GJ, Alfonso H, Hulse G, Lautenschlager NT, Hankey GJ. 24-month effect of smoking cessation on cognitive function and brain structure in later life. Neuroimage 2011 Apr 15;55(4):1480-9.	Mental health outcome was measured during the withdrawal period.
Baker A, Richmond R, Lewin TJ, Kay-Lambkin F. Cigarette smoking and psychosis: Naturalistic follow up 4 years after an intervention trial. Australian and New Zealand Journal of Psychiatry 2010;44(4):342-50.	Does not compare smokers with quitters. Randomised controlled trial follow-up.
Berg CJ, Thomas JL, Guo H, An LC, Okuyemi KS, Collins TC, & Ahluwalia JS. Predictors of smoking reduction among Blacks. Nicotine & Tobacco Research 2010;12(4):42331..	Smoking status was the outcome. No mental health outcome.
Bercaw EL. A behavioral activation approach to smoking cessation for depressed smokers at veterans affairs medical centers. Dissertation Abstracts International: Section B: The Sciences and Engineering 68[8-B], 5557. 2008.	Smoking status as outcome.
Billert H, Gaca M, Adamski D, Miluska J, Breborowicz G. Significance of smoking and cigarette abstinence regarding anxiety in gynecologic patients in a perioperative period. Przeglad Lekarski 2006;63(10):870-7.	Mental health outcome was measured during the withdrawal period.
Borrelli B, Niaura R, Keuthen NJ, Goldstein MG, DePue JD, Murphy C, et al. Development of major depressive disorder during smoking-cessation treatment. J Clin Psychiatry 1996 Nov;57(11):534-8.	Does not report mental health data by smoking status.
Boudrez H. Psychological factors and long-term abstinence after smoking cessation treatment. Journal of Smoking Cessation 4[1], 10-17. 2009.	Smoking status as outcome. Mental health as predictor.
Breslau N, Novak SP, Kessler RC. Psychiatric disorders and stages of smoking. Biological Psychiatry 2004;55(1):69-76.	No quit group. Age range below 18.
Catley D, Ahluwalia JS, Resnicow K, Nazir N. Depressive symptoms and smoking cessation among inner-city African Americans using the nicotine patch. Nicotine & Tobacco Research 2003;5(1):61-8.	Smoking status as outcome.
Cohen SB. Tranquilizing effects of smoking cessation. American Journal of Psychiatry 1999;156(4):666-7.	Review article.
Cooley ME, Sarna L, Kotlerman J, Lukanich JM, Jaklitsch M, Green SB. Smoking cessation is challenging even for patients recovering from lung cancer surgery with curative intent. Lung Cancer 2009;66(2):218-25.	Smoking status as outcome.
Covey LS, Glassman AH, Stetner F. Major depression following smoking cessation. American Journal of Psychiatry 1997 Feb;154(2):263-5.	No continuing smoker group.

Covey LS, Bomback A, Yan GWY. History of depression and smoking cessation: A rejoinder. Nicotine & Tobacco Research 2006;8(2):315-9.	Meta-analysis of smoking status as the outcome.
Dalack GW, Becks L, Hill E, Pomerleau OF, Meador-Woodruff JH. Nicotine withdrawal and psychiatric symptoms in cigarette smokers with schizophrenia. Neuropsychopharmacology 1999;21[2], 195-202.	Mental health outcome was measured during the withdrawal period.
Dempsey JP, Cohen LM. Commentary on Hajek et al. (2010):Investigating the stress reduction in smoking cessation. Addiction 2010;105(8):1472-3.	Commentary article.
Etter J-F, Hughes JR. A comparison of the psychometric properties of three cigarette withdrawal scales. Addiction 2006;101(3): 362-72.	Mental health outcome was measured during the withdrawal period.
ez-Ganan L, Guallar-Castillon P, Banegas JRB, Urdinguio PJL, Fernandez E, Enriquez JG, et al. Subjective health of male ex-smokers: Relationship with time since smoking cessation, intensity and duration of tobacco consumption. Preventative Medicine 2002;35(4):320-5.	No mental health outcome.
Frederick SL, Hall SM, Humfleet GL, Munoz RF. Sex differences in the relation of mood to weight gain after quitting smoking. Experimental and Clinical Psychopharmacology 1996;4(2):178-85.	Does not report baseline or follow up mental health scores of quitters and continuer smokers.
Frederick S, Reus V, Ginsberg D, Hall S, Munoz R, Ellman G. Cortisol and response to dexamethasone as predictors of withdrawal distress and abstinence success. Biological Psychiatry 1998; 43(7):525-530.	Mental health outcome was during the withdrawal period.
Garces YI, Yang P, Parkinson J, Zhao XH, Wampfler JA, Ebbert JO. The relationship between cigarette smoking and quality of life after lung cancer diagnosis. Chest 2004;126(6):1733-41.	Does not measure mental health.
Gelenberg AJ, de Leon J, Evins AE, Parks JJ, Rigotti NA. Smoking cessation in patients with psychiatric disorders. Journal of Clinical Psychiatry 2007;68(9):1404-10.	Commentary article.
Gilbert DG, McClernon FJ, Rabinovich NE, Plath LC, Jensen RA, Meliska CJ. Effects of smoking abstinence on mood and craving in men: Influences of negative-affect-related personality traits, habitual nicotine intake and repeated measurements. Personality and Individual Differences 1998;25(3):399-423.	Mental health outcome was measured during the withdrawal period.
Gilbert DG, McClernon FJ, Rabinovich NE, Dibb WD, Plath LC, Hiyane S. EEG, physiology, and task-related mood fail to resolve across 31 days of smoking abstinence: Relations to depressive traits, nicotine exposure, and dependence. Experimental and Clinical Psychopharmacology 1999;7(4):427-43.	Mental health outcome was measured during the withdrawal period.
Gilbert DG, McClernon FJ, Rabinovich NE, Plath LC, Masson CL, Anderson AE, et al. Mood disturbance fails to resolve across 31 days of cigarette abstinence in women. Journal of Consulting and Clinical Psychology 2002;70(1):142-52.	Mental health outcome was measured during the withdrawal period.
Gilbert HM, Warburton DM. Individual variation in psychological and psychomotor symptoms following smoking cessation: The implications for treatment. Psychology & Health 2003;18(5):613-24.	Mental health outcome was measured during the withdrawal period.
Ginsberg D, Hall SM, Reus VI, Munoz RF. Mood and depression diagnosis in smoking cessation. Experimental and Clinical Psychopharmacology 1995;3[4]: 389-95.	Smoking status as outcome.
Giskes K, van Lenthe FJ, Turrell G, Brug J, Mackenbach JP. Smokers living in deprived areas are less likely to quit: A longitudinal follow-up. Tobacco Control: An International Journal 2006;15[6]: 485-8.	Cessation status as outcome.
Glassman AH, Covey LS, Dalack GW, Stetner F. Cigarette smoking, major depression, and schizophrenia. Clinical Neuropharmacology 1992;15:561A.	Commentary article.
Glassman AH, Hercher LS. Forum. Which aspects of nicotine addiction should concern mental health professionals? Harvard Mental Health Letter 1999;16(2):8.	Commentary article.
Goldberg JO, Van EJ. Longitudinal rates of smoking in a schizophrenia sample. Tobacco Control 2008;17(4):271-5.	No mental health outcome.
Goto R, Takahashi Y, Nishimura S, Ida T. A cohort study to examine whether time and risk preference is related to smoking cessation success. Addiction 2009 Jun;104(6):1018-	Smoking cessation status as outcome.

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Grassi MC, Enea D, Ferketich AK, Lu B, Pasquariello S, Nencini P. Effectiveness of varenicline for smoking cessation: A 1-year follow-up study. Journal of Substance Abuse Treatment 2011; 41(1):64-70.	Randomised controlled trial. Analysis by treatment group.
Gritz ER, Carr CR, Marcus AC. The tobacco withdrawal syndrome in unaided quitters. British Journal of Addiction 1991;86(1):57-69.	No continuing smoker group.
Gross J, Stitzer ML. Nicotine replacement: ten-week effects on tobacco withdrawal symptoms. Psychopharmacology 1989;98(3):334-41.	No continuing smoker group.
Grunberg NE. The tobacco use crisis and mental health. Psychiatry 2003;66(3):200-1.	Commentary article.
Guiterrez-Bedmar M, Segui-Gomez M, Gomez-Gracia E, Bes-Rastrollo M, Martinez-Gonzalez MA. Smoking status, changes in smoking status and health-related quality of life: findings from the SUN ("Seguimiento Universidad de Navarra") cohort. International Journal of Environmental Research & Public Health 2009;6(1):310-20.	No psychological outcome data presented at baseline.
Hajek P, Belcher M. Dream of absent-minded transgression: An empirical study of a cognitive withdrawal symptom. Journal of Abnormal Psychology 1991;100[4]:487-91.	No mental health outcome. No continuing smoker group.
Hall SM, Bachman J, Henderson JB. Smoking cessation in patients with cardiopulmonary disease: An initial study. Addictive Behaviour 1983;8(1):33-42.	Smoking reduction status as outcome
Hall SM, Munoz R, Reus V. Smoking cessation, depression and dysphoria. NIDA Research Monograph 1990;105:312-3.	Mental health outcome was measured during the withdrawal period.
Harris GT, Parle D, Gagne J. Effects of a tobacco ban on long-term psychiatric patients. Journal of Behavioural Health Services & Research 2007;34(1):43-55.	No mental health outcome. No quit group.
Hartlapp J. Smoking cessation: What happens in the body. Medizinische Monatsschrift fur Pharmazeuten 1992;15(1):17-9.	Commentary article.
Hawkins J, Hollingworth W, Campbell R. Long-term smoking relapse: A study using the British Household Panel Survey. Nicotine & Tobacco Research 2010;12[12]: 1228-35.	No mental health outcome.
Hayes RB, Dunsiger S, Borrelli B. The influence of quality of life and depressed mood on smoking cessation among medically ill smokers. Journal of Behavioural Medicine 2010;33(3):209-18.	Smoking cessation status as outcome.
Hayford KE, Patten CA, Rummans TA, Schroeder DR, Offord KP, Croghan IT, Efficacy of bupropion for smoking cessation in smokers with a former history of major depression or alcoholism. British Journal of Psychiatry 1999;174:173-8.	Randomised controlled trial. Analysis by treatment group.
Heffner JL, DelBello MP, Anthenelli RM, Fleck DE, Adler CM, Strakowski SM. Cigarette smoking and its relationship to mood disorder symptoms and co-occurring alcohol and cannabis use disorders following first hospitalization for bipolar disorder. Bipolar Disorders 2012;14(1):99-108	Mental health was measured during the withdrawal period.
Heffner JL, DelBello MP, Anthenelli RM, Fleck DE, Adler CM, Strakowski SM. Relationship between cigarette smoking and symptoms of bipolar disorder following first hospitalization for a manic or mixed episode. Bipolar Disorders 2012;14(1):99-108.	Data published in Heffner (2012)
Heinold JW, Garvey AJ, Goldie C, Bosse R. Retrospective analysis in smoking cessation research. Addict Behaviours 1982;7(4):347-353.	No mental health outcome.
Herd N, Borland R, Hyland A. Predictors of smoking relapse by duration of abstinence: Findings from the International Tobacco Control (ITC) Four Country Survey. Addiction 2009;104(12):2088-99	Cessation status as outcome.
Hirdes JP, Maxwell CJ. Smoking cessation and quality of life outcomes among older adults in the Campbell's survey on well-being. Canadian Journal of Public Health 1994;85(2):99-102.	No mental health outcome.
Hoogenveen RT, Van Baal PHM, Boshuizen HC, Feenstra TL. Dynamic effects of smoking cessation on disease incidence, mortality and quality of life: The role of time	Methodology paper for determining effect of cessation on disease.

since cessation. Cost Effectiveness and Resource Allocation 2008;6(1):1.	
Hoogwegt MT, Hoeks SE, Pedersen SS, op Reimer WJMS, van Gestel YR, Verhagen HJ. Smoking cessation has no influence on Quality of Life in patients with peripheral arterial disease 5 years post-vascular surgery. European Journal of Vascular and Endovascular Surgery 2010;40(3):355-62.	Modelling paper.
Horn K, Dino G, Kalsekar I, Massey CJ, Manzo-Tennant K, McGloin T. Exploring the relationship between mental health and smoking cessation: A study of rural teens. Prevention Science 2004;5(2):113-26.	Participants were teenagers.
Hughes JR, Carpenter MJ. Stopping smoking: carpe diem? Tobacco Control 2006;15(5):415-16	Commentary article.
Hughes JR. Tobacco withdrawal in self-quitters. Journal of Consulting and Clinical Psychology 1992;60[5]: 689-697.	Mental health was measured during the withdrawal period.
Hurt RD, Offord KP, Hepper NGG, Mattson BR, Toddie DA. Long-term follow-up of persons attending a community-based smoking-cessation program. Mayo Clinic Proceedings 1988;63(7):681-90.	No mental health outcome.
Hurt RD, Sachs DP, Glover ED, Offord KP, Johnston JA, Dale LC, et al. A comparison of sustained-release bupropion and placebo for smoking cessation. New England Journal of Medicine 1997;337(17):1195-202.	Randomised controlled trial. Analysis by treatment group.
Iglesias C, Lopez G, Alonso MJ. Effects of smoking ban in a general hospital psychiatric unit. Actas Espanolas de Psiquiatria 2008;36[1]: 60-62.	Study about patients' thoughts on the smoking ban.
Jacobsen LK, Krystal JH, Mencl WE, Westerveld M, Frost SJ, Pugh KR. Effects of smoking and smoking abstinence on cognition in adolescent tobacco smokers. Biological Psychiatry 2005;57(1):56-66.	Participants were teenagers.
Jang A-S, Park S-W, Kim D-J, Uh S, Kim YH, Whang HG. Effects of smoking cessation on airflow obstruction and quality of life in asthmatic smokers. Allergy, Asthma and Immunology Research 2010;2(4):254-9.	No mental health outcome.
Japuntich SJ, Smith SS, Jorenby DE, Piper ME, Fiore MC, Baker TB. Depression predicts smoking early but not late in a quit attempt. Nicotine & Tobacco Research 2007;9(6):677-86.	Smoking cessation attempt status was the outcome.
Jenner DA, Puddey IB, Beilin LJ, Vandongen R. Lifestyle- and occupation-related changes in blood pressure over a six-year period in a cohort of working men. Journal of Hypertension 1988;6(4):S605-S607.	No quit group.
Jimenez-Ruiz CA, Ulibarri MM, Besada NA, Guerrero AC, Garcia AG, Cuadrado AR. Progressive reduction using nicotine gum as a prelude to quitting. Nicotine & Tobacco Research 2009;11(7):847-50.	No mental health outcome.
Johnson EO, Breslau N. Is the association of smoking and depression a recent phenomenon? Nicotine & Tobacco Research 2006;8(2):257-62.	Cessation as outcome.
Johnson EO, Novak SP. Onset and persistence of daily smoking: The interplay of socioeconomic status, gender, and psychiatric disorders. Drug & Alcohol Dependence 2009;104:S50-7.	Onset of smoking as outcome.
Jorenby DE, Hatsukami DK, Smith SS, Fiore MC, Allen S, Jensen J. Characterization of tobacco withdrawal symptoms: transdermal nicotine reduces hunger and weight gain. Psychopharmacology 1996;128(2):130-8.	No continuing smoker group.
Judit BJ, Simon E, Lukacs M & Csapo E. Psychosocial factors influencing smoking cessation in patients with coronary artery disease. European Journal of Cardiovascular Prevention and Rehabilitation 2011;18(1): S41.	Cessation as outcome
Kahler CW, Strong DR, Niaura R, Brown RA. Hostility in smokers with past major depressive disorder: relation to smoking patterns, reasons for quitting, and cessation outcomes. Nicotine & Tobacco Research 2004;6(5):809-18.	Mental health was measured during the withdrawal period.
Kahler CW, Spillane NS, Metrik J. Alcohol use and initial smoking lapses among heavy	No quit group. No continuing smoker group.

drinkers in smoking cessation treatment. Nicotine & Tobacco Research 2010;12(7):781-5.	
Kahn RS, Certain L, Whitaker RC. A reexamination of smoking before, during, and after pregnancy. American Journal of Public Health 2002;92(11):1801-8.	Cessation status as outcome.
Kenney BA, Holahan CJ, Holahan CK, Brennan PL, Schutte KK, Moos RH. Depressive symptoms, drinking problems, and smoking cessation in older smokers. Addictive Behaviour 2009;34(6-7):548-53.	Cessation status as outcome.
Khaled SM, Bulloch A, Exner DV, Patten SB. Cigarette smoking, stages of change, and major depression in the Canadian population. Canadian Journal of Psychiatry 2009;54(3):204-8.	Does not present data of change in mental health.
Killen JD, Robinson TN, Ammerman S, Hayward C, Rogers J, Samuels D. Major depression among adolescent smokers undergoing treatment for nicotine dependence. Addictive Behaviour 2004;29(8):1517-26.	All participants were teenagers.
Kouvonen A, Oksanen T, Vahtera J, Vaananen A, De VR, Elovainio M. Work-place social capital and smoking cessation: the Finnish Public Sector Study. Addiction 2008;103(11):1857-65.	Smoking cessation as outcome.
Lagrue, G., Dupont, P., & Fakhfakh, R. 2002, "Anxiety and depressive disorders in tobacco dependence", *Encephale-Revue de Psychiatrie Clinique Biologique et Therapeutique*, vol. 28, no. 4, pp. 374-377	Cross-sectional data.
Lam CY, Robinson JD, Versace F, Minnix JA, Cui Y, Carter BL. Affective reactivity during smoking cessation of never-quitters as compared with that of abstainers, relapsers, and continuing smokers. Experimental and Clinical Psychopharmacology 2012;20(2):139-50.	Mental health was measured during the withdrawal period.
Lam TH, Stewart SM, Ho SY, Lai MK, Mak KH, Chau KV. Depressive symptoms and smoking among Hong Kong Chinese adolescents. Addiction 2005;100(7):1003-11.	All participants were teenagers
Lerman C, Niaura R, Collins BN, Wileyto P, udrain-McGovern J, Pinto A. Effect of bupropion on depression symptoms in a smoking cessation clinical trial. Psychology of Addictive Behaviours 2004;18(4):362-6.	Randomised controlled trial. Analyses data by treatment group.
Lerman C, udrain-McGovern J. Reinforcing effects of smoking: more than a feeling. Biological Psychiatry 2010;67(8):699-701.	Review article.
Levin ED, Westman EC, Stein RM, Carnahan E, Sanchez M, Herman S. Nicotine skin patch treatment increases abstinence, decreases withdrawal symptoms, and attenuates rewarding effects of smoking. Journal of Clinical Psychopharmacology 1994;14(1):41-9.	Randomised trial presenting data by treatment group.
Levine MD, Marcus MD, Kalarchian MA, Houck PR, Cheng Y. Weight concerns, mood, and postpartum smoking relapse. American Journal of Preventative Medicine 2010;39(4):345-51.	Cessation as outcome.
Lima JE, Reid MS, Smith JL, Zhang YL, Jiang HP, Rotrosen J. Medical and mental health status among drug dependent patients participating in a smoking cessation treatment study. Journal of Drug Issues 2009;39(2):293-311.	Not a study of the association between cessation and mental health change.
Ludman EJ, McBride CM, Nelson JC, Curry SJ, Grothaus LC, Lando HA. Stress, depressive symptoms, and smoking cessation among pregnant women. Health Psychology 2000;19(1):21-7.	Cessation as outcome.
Lumley MA, Downey K, Stettner L, Wehmer F, Pomerleau OF. Alexithymia and negative affect: relationship to cigarette smoking, nicotine dependence, and smoking cessation. Psychotherapy & Psychosomatics 1994;61(3-4):156-62.	Three studies but none of which are studies of the association between cessation and change in mental health.
Margery J, Margery D, Goutier K, Dot JM. Smoking cessation in adolescence: Questionnaire study of 248 students. Revue des Maladies Respiratoires 2007;24(5):663-4.	Participants were teenagers
McClure JB, Swan GE, Jack L, Catz SL, Zbikowski SM, McAfee TA. Mood, side-effects and smoking outcomes among persons with and without probable lifetime depression taking varenicline. Erratum. Journal of General Internal Medicine 2009; 24[10]: 1173.	Randomised controlled trial. Analyses data by treatment group.
McDermott L, Dobson A, Owen N. Smoking reduction and cessation among young adult women: a 7-year prospective analysis. Nicotine & Tobacco Research 2008;10(9):1457-66.	Cessation status as outcome.

McGee HM, Doyle F, Conroy RM, De La HD, Shelley E. Impact of briefly-assessed depression on secondary prevention outcomes after acute coronary syndrome: A one-year longitudinal survey. BMC Health Services Research 2006;6:9.	No data presented by smoking status.
Moreno-Coutino A, Calderon-Ezquerro C, Drucker-Colin R. Long-term changes in sleep and depressive symptoms of smokers in abstinence. Nicotine & Tobacco Research 2007;9(3):389-96.	Continuing smoker group includes recent relapsers.
Morris CD, Waxmonsky JA, May MG, Tinkelman DG, Dickinson M, Giese AA. Smoking reduction for persons with mental illnesses: 6-month results from community-based interventions. Community Mental Health Journal 47[6], 694-702. 2011.	Randomised controlled trial. Analyses data by treatment group.
Morton K, Pradhan SC. Smoking cessation and major depression. Lancet 2001;358(9286):1011.	Commentary article.
Mulder I, Tijhuis M, Smit HA, Kromhout D. Smoking cessation and quality of life: The effect of amount of smoking and time since quitting. Preventative Medicine 2001;33(6):653-60.	Cross-sectional data.
Mykletun A, Overland S, Aaro LE, Liabo HM, Stewart R. Smoking in relation to anxiety and depression: evidence from a large population survey: the HUNT study. European Psychiatry 2008;23(2):77-84.	Cross-sectional data.
Niaura R, Britt DM, Borrelli B, Shadel WG, Abrams DB, Goldstein MG. History and symptoms of depression among smokers during a self-initiated quit attempt. Nicotine & Tobacco Research 1999;1(3):251-7.	No continuing smoker group.
Niaura R, Abrams DB. Stopping smoking: A hazard for people with a history of major depression? Lancet 2001;357(9272):1900-1.	Commentary article.
Nielsen PE. Smoking cessation. Ugeskr Laeger 1992;154(5):245.	Commentary article.
Norcross JC, Vangarelli DJ. The resolution solution: longitudinal examination of New Year's change attempts. The Journal of Substance Abuse Treatment 1988;1(2):127-34.	No mental health outcome.
Norman RMG, Malla AK. Subjective Stress in Schizophrenic-Patients. Social Psychiatry and Psychiatric Epidemiology 1991;26(5):212-6.	No continuing smoker group. No quit group.
Norman SM. Psychologic factors need attention in persons quitting smoking. American Family Physician 1996;54(2):690.	Commentary article.
O'Hara P, Portser SA, Anderson BP. The influence of menstrual cycle changes on the tobacco withdrawal syndrome in women. Addictive Behaviours 1989;14(6):595-600.	No continuing smoker group. Measurement of mental health during the withdrawal period.
Papadopoulos G, Vardavas CI, Limperi M, Linardis A, Georgoudis G, Behrakis P. Smoking cessation can improve quality of life among COPD patients: validation of the clinical COPD questionnaire into Greek. BMC Pulmonary Medicine 2011;11:13.	No continuing smoker group.
Park ER, Chang Y, Quinn V, Regan S, Cohen L, Viguera A. The association of depressive, anxiety, and stress symptoms and postpartum relapse to smoking: a longitudinal study. Nicotine & Tobacco Research 2009;11(6):707-14.	Smoking status as outcome.
Patten CA, Rummans TA, Croghan IT, Hurt RD, Hays JT. Development of depression during placebo-controlled trials of bupropion for smoking cessation: Case reports. Journal of Clinical Psychiatry 1999;60(7):436-41.	Case study.
Pederson LL, Wanklin JM, Lefcoe NM. Self-reported long-term smoking cessation in patients with respiratory disease: prediction of success and perception of health effects. International Journal of Epidemiology 1988;17(4):804-9.	Smoking status as outcome.
Pepper T. An analysis of smoking demographics in HMS DRAKE and an update on smoking cessation support. Journal of the Royal Naval Medicine Service 2007; 93(2):67-74.	Cross-sectional data.
Pergadia ML, Agrawal A, Heath AC, Martin NG, Bucholz KK, Madden PAF. Nicotine withdrawal symptoms in adolescent and adult twins. Twin Research and Human Genetics 2010;13(4):359-69.	Retrospective study of withdrawal in twins.

Perkins KA, Marcus MD, Levine MD, D'Amico D, Miller A, Broge M. Cognitive-behavioural therapy to reduce weight concerns improves smoking cessation outcome in weight-concerned women. Journal of Consulting & Clinical Psychology 2001;69(4):604-13.	Randomised controlled trial. Analyses data by treatment group.
Piasecki TM, Fiore MC, Baker TB. Profiles in discouragement: two studies of variability in the time course of smoking withdrawal symptoms. Journal of Abnormal Psycholology 1998;107(2):238-51.	No continuing smoker group.
Piasecki TM, Kenford SL, Smith SS, Fiore MC. Listening to nicotine: Negative affect and the smoking withdrawal conundrum. Psychological Science1997; 8[3]:184-9.	No continuing smoker group.
Piper ME, Kenford S, Fiore MC, Baker TB. Smoking Cessation and Quality of Life: Changes in Life Satisfaction Over 3 Years Following a Quit Attempt. Annals of Behavioural Medicine 2012;43(2):262-70.	No mental health outcome.
Polgar S, McGartland M, Borlongan CV, Shytle RD, Sanberg PR. Smoking cessation programmes are neglecting the needs of persons with neuropsychiatric disorders. Australian and New Zealand Journal of Medicine 1996;26(4):572-3.	Commentary article.
Polosa R. Smoking cessation: A critical investigative tool in COPD. European Respiratory Journal 2006;27(4):860-1.	Commentary article.
Prochaska JO, DiClemente CC. Self change processes, self efficacy and decisional balance across five stages of smoking cessation. Progress in Clinical and Biological Research 1984;156:131-40.	No mental health outcome
Prochaska JO. Working in harmony with how people quit smoking naturally. Rhode Island Medicine 1993;76(10):493-5.	Review article.
Puddey IB, Vandongen R, Beilin LJ, English DR, Ukich AW. The effect of stopping smoking on blood pressure: A controlled trial. Journal of Chronic Disease 1985;38(6):483-93.	Randomised controlled trial. Analyses data by treatment group.
Raherison C, Marjary A, Valpromy B, Prevot S, Fossoux H, Taytard A. Evaluation of smoking cessation success in adults. Respiratory Medicine 2005;99(10):1303-10.	Smoking status as outcome.
Raymond CB, Naylor HK. Smoking cessation in patients with chronic kidney disease. CANNT Journal 2010;20(4):24-9.	Review article.
Reus, V. I., Hall, S., Ginsberg, D., & Munoz, R. 1993, "Cortisol, Depression, and Smoking Cessation", Biological Psychiatry, vol. 33, no. 6A, p. A61.	Requested paper. The author stated the results were reported in Frederick (1998). In this article the mental health outcomes were assessed during the withdrawal period.
Rogge N. Smoking cessation and the course of major depression: A follow-up study: Comment. Schweizerische Rundschau fur Medizin – Praxis 2003;92(43):1833.	Commentary article.
Royce JM, Gorin SS, Edelman B, Rendino-Perrone R, Orlandi MA. Student nurses and smoking cessation. Progress Clinical and Biological Research 1990;339:49-71.	Intervention trial. Analysis by smoking cessation treatment group.
Russek HI. Tobacco consumption and emotional stress in etiology of coronary heart disease. Geriatrics 1964;19(6):425-33..	No quit group.
Rutter S. Cigarette-smoking reduction in university students. Psychological Reports 1990;66:186.	No mental health outcome.
Ryan B, Coffin K, Smillie C, Porter K. Smoking cessation in Nova Scotia: Results of the time to quit program. Canadian Journal of Public Health 1990;81(2):166-7.	No mental health outcome.
Ryan PJ, Forster NJD, Holder D. Evaluation of a worksite smoking-cessation program. Journal of Occupational and Environmental Medicine;44(8):703-4.	Evaluation of intervention.
Ryan S. Chronic obstructive pulmonary disease: Boosting quality of life. Community Nurse 2000 Apr;6(3):31-2.	Review article.
Sachs-Ericsson N, Schmidt NB, Zvolensky MJ, Mitchell M, Collins N, Blazer DG. Smoking cessation behaviour in older adults by race and gender: the role of health	Smoking status as outcome.

problems and psychological distress. Nicotine & Tobacco Research 2009;11(4):433-43.	
Sagall RJ. Smoking cessation. The Journal Of Family Practice 1992;35(5):495-6.	Commentary article.
Schlede CM. Smoking cessation. The Journal of the Florida Medical Association 1996;83(2):108-12.	Commentary article.
Schwartz JL, Dubitzky M. Changes in anxiety, mood, and self-esteem resulting from an attempt to stop smoking. The American Journal of Psychiatry 1968, 124(11):1580-4.	No figures presented in paper.
Scott WD, Beevers CG, Mermelstein RJ. Depression vulnerable and nonvulnerable smokers after a failure experience: examining cognitive self-regulation and motivation. Behaviour Modification 2008;32(4):519-39.	No data on change in mental health by smoking status.
Seidman DF, Westmaas JL, Goldband S, Rabius V, Katkin ES, Pike KJ. Randomized controlled trial of an interactive internet smoking cessation program with long-term follow-up. Annals of Behavioural Medicine 2010; 39(1):48-60.	Randomised controlled trial. Analyses data by treatment group.
Shadel WG, Mermelstein RJ. Cigarette smoking under stress: The role of coping expectancies among smokers in a clinic-based smoking cessation program. Health Psychology 1993;12(6):443-50.	Smoking status and urges as outcome.
Shaw JW, Coons SJ, Foster SA, Leischow SJ, Hays RD. Responsiveness of the Smoking Cessation Quality of Life (SCQoL) questionnaire. Clinical Therapeutics 2001;23(6):957-69.	Mental health outcome measured during the withdrawal period
Shi Y, Hooten WM, Warner DO. Effects of smoking cessation on pain in older adults. Nicotine & Tobacco Research 2011;13(10):919-25.	Pain as outcome.
Shiffman S. Relapse following smoking cessation: a situational analysis. Journal of Consulting & Clinical Psychology 1982;50(1):71-86.	Smoking status as outcome.
Shiffman, S. 2005, "Dynamic influences on smoking relapse process", Journal of Personality, vol. 73, no. 6, pp. 1715-1748.	Smoking status as outcome.
Shiffman, S. & Waters, A. J. Negative Affect and Smoking Lapses: A Prospective Analysis. [References]. Journal of Consulting and Clinical Psychology 72[2], 192-201. 2004.	Smoking status as outcome.
Shipley RH. Smoking-reduction programs help businesses snuff out health problems. Occupational Health & Safety 1987;56(1):73-8.	Review article.
Siahpush M, Carlin JB. Financial stress, smoking cessation and relapse: Results from a prospective study of an Australian national sample. Addiction 2006;101(1):121-7.	Smoking status as outcome.
Sirota AD, Rohsenow DJ, MacKinnon SV, Martin RA, Eaton CA, Kaplan GB. Intolerance for smoking abstinence questionnaire: Psychometric properties and relationship to tobacco dependence and abstinence. Addictive Behaviours 2010;35[7], 686-693.	Factor analysis for development of a new psychometric questionnaire.
Sloan RP, Dimberg L, Welkowitz LA, Kristiansen MA. Cessation and relapse in a year-long workplace quit-smoking contest. Preventative Medicine 1990;19(4):414-23.	Smoking status as outcome.
Stein MD, Weinstock MC, Anderson BJ, Anthony JL. Relationship of depression to smoking outcomes in a methadone-maintained population. Journal of Addictive Diseases 2007;26(1):35-40.	Smoking status as outcome.
Stott P. Smoking cessation: Trying hard; but could do better. International Journal of Clinical Practice 2006 Sep;60(9):1025-6.	Commentary article.
Strasser AA, Kaufmann V, Jepson C, Perkins KA, Pickworth WB, Wileyto EP. Effects of different nicotine replacement therapies on postcessation psychological responses. Addictive Behaviours 2005;30(1):9-17.	Randomised controlled trial. Analyses data by treatment group.
Strong DR, Kahler CW, Leventhal AM, Abrantes AM, Lloyd-Richardson E, Niaura R. Impact of bupropion and cognitive-behavioral treatment for depression on positive affect, negative affect, and urges to smoke during cessation treatment. Nicotine & Tobacco Research 2009;11(10):1142-53.	Randomised controlled trial. Analyses data by treatment group.
Szklo AS, Coutinho ES, Spitz R, Gamba J. Gains of stopping smoking: portraits of the dialogue between public health promotion, art and design. International Journal of	Commentary article.

Epidemiology 2009;38(6):1459-63.	
Tariman JD. Smoking cessation in men. Advance for Nurse Practitioners 2006;14(6):21.	Review paper.
Taylor GH, Graham MJ. Smoking cessation. The New Zealand Medical Journal 1992;105(930):100-1.	Commentary article.
Thomas CB. Personality differences between smokers and nonsmokers. Maryland State Medical Journal 1978;27(5):63-6.	Cross-sectional
Thorndike AN, Regan S, McKool K, Pasternak RC, Swartz S, Torres-Finnerty N. Depressive symptoms and smoking cessation after hospitalization for cardiovascular disease. Archives of International Medicine 2008;168(2):186-91.	Smoking status as outcome.
Thorsteinsson HS, Gillin JC, Patten CA, Golshan S, Sutton LD, Drummond S, et al. The effects of transdermal nicotine therapy for smoking cessation on depressive symptoms in patients with major depression. Neuropsychopharmacology 2001;24(4):350-8.	Mental health was measured during the withdrawal period.
Tonnesen P, Pisinger C, Hvidberg S, Wennike P, Bremann L, Westin A. Effects of smoking cessation and reduction in asthmatics. Nicotine & Tobacco Research 2005; 7(1):139-48.	The quitter group includes people who had only recently quit.
Tsoi DT, Webster AC. Interventions for smoking cessation and reduction in individuals with schizophrenia. Cochrane Database of Systematic Reviews 2010;16(6):CD007253.	Meta-analysis of interventions.
Vidrine DJ, Arduino RC, Gritz ER. The effects of smoking abstinence on symptom burden and quality of life among persons living with HIV/AIDS. Aids Patient Care STDS 2007;21(9):659-66.	Change in mental health measured during the withdrawal period.
Wang YZ, Chen HH, Yeh ML, Lin SD. Auricular acupressure combined with multimedia instruction or alone for quitting smoking in young adults: A quasi-experimental study. International Journal of Nursing Studies 2010;47(9):1089-95.	No continuing smoker group. No quitter group.
West R, Gilsenan A, Coste F, Zhou X, Brouard R, Nonnemaker J, et al. The ATTEMPT cohort: A multi-national longitudinal study of predictors, patterns and consequences of smoking cessation; introduction and evaluation of internet recruitment and data collection methods. Addiction 2006;101(9):1352-61.	Smoking status as outcome.
West R, Hajek P. What happens to anxiety levels on giving up smoking? American Journal of Psychiatry 1997;154(11):1589-92.	No continuing smoker group.
West R, Hajek P. Evaluation of the mood and physical symptoms scale (MPSS) to assess cigarette withdrawal. Psychopharmacology 2004;177(1-2):195-9.	No continuing smoker group. Mental health was assessed during the withdrawal period.
Wewers ME, Ahijevych KL. Work stress after smoking cessation. American Association of Occupational Health Nurses 1991;39(12):547-51.	No continuing smoker group. Analysis of a relapse group.
Yoder YB. Smoking cessation and stress. Journal of the American Board of Family Practice 1991;4(3):198.	Commentary article.
Zelman DC, Brandon TH, Jorenby DE, Baker TB. Measures of affect and nicotine dependence predict differential response to smoking cessation treatments. Journal of Consulting & Clinical Psychology 1992;60(6):943-52.	Randomised controlled trial. Analysis by treatment group.
Ziegelstein RC. Smoking cessation and the risk for type 2 diabetes mellitus. Annuals of International Medicine 2010;152(1):10-7.	Commentary article.

Table C: References of articles excluded from meta-analysis and reasons for exclusion	
Reference (n=27)	**Reason for exclusion**
Bolam B, West R, Gunnell D. Does smoking cessation cause depression and anxiety? Findings from the ATTEMPT cohort. Nicotine & Tobacco Research 2011; **13**: 209-14.	Binary outcome.
Bolliger CT, Zellweger JP, Danielsson T, et al. Influence of long-term smoking reduction on health risk markers and quality of life. Nicotine & Tobacco Research 2002; **4**: 433-9.	Does not report any data on individuals who quit. No response to additional data.
Breslau N, Peterson EL, Schultz LR, Chilcoat HD, Andreski P. Major depression and stages of smoking: A longitudinal investigation. Archives of General Psychiatry 1998;55:161-6.	Binary outcome.
Carey MP, Kalra DL, Carey KB, Halperin S, Richards CS. Stress and unaided smoking cessation: a prospective investigation. Journal of Consulting & Clinical Psychology 1993;61:831-8.	Provides only a verbal description of change in mental health. The author no longer has access to the requested data.
Cohen S, Lichtenstein E. Perceived stress, quitting smoking, and smoking relapse. Health Psychology 1990;9:466-78.	Does not provide enough data to calculate mean change for each group. The author no longer has access to the requested data.
George TP, Vessicchio JC, Termine A, Sahady DM, Head CA, Pepper WT, et al. Effects of smoking abstinence on visuospatial working memory function in schizophrenia. Neuropsychopharmacology 2002;26:75-85.	Does not present enough data at the final follow-up. The author sent additional data, however the data was not presented by smoking status.
Glassman AH, Covey LS, Stetner F, Rivelli S. Smoking cessation and the course of major depression: A follow-up study. Lancet 2001;16:1929-32.	Percentage outcome.
Hughes JR, Gust SW, Skoog K, Keenan RM, Fenwick JW. Symptoms of tobacco withdrawal: A replication and extension. Archives of General Psychiatry 1991;48:52-9.	Extracted data. However, as the M scores were calculated by ruler. All the SEs were assumed as less than 1. The research team decided that the calculations were based on too many assumptions to be accurate.
John U, Meyer C, Rumpf HJ, Hapke U. Smoking, nicotine dependence and psychiatric comorbidity--a population-based study including smoking cessation after three years. Drug & Alcohol Dependence 2004 ;76(3):287-95.	Binary outcome.
Kaetsu A, Fukushima T, Moriyama M, Shigematsu T. Change of the smoking behaviour and related lifestyle variables among physicians in Fukuoka, Japan: a longitudinal study. Journal of Epidemiology 2002 May;12:208-16.	Binary outcome.
Khaled SM, Bulloch AG, Williams JVA, Hill JC, Lavorato DH, Patten SB. Persistent heavy smoking as risk factor for major depression (MD) incidence: Evidence from a longitudinal Canadian cohort of the National Population Health Survey. Journal of Psychiatric Research 2012;46:436-43.	Binary outcome.
Marqueta A, Jimenez-Muro A, Beamonte A, Gargallo P, Nerin I. Evolution of anxiety during the smoking cessation process at a Smoking Cessation Clinic. Adicciones 2010;22:317-24.	Does not report follow-up data by smoking status. No response to request for additional data.
McMahon SD, Jason LA. Stress and coping in smoking cessation: A longitudinal examination. Anxiety Stress and Coping 1998;11:327-43.	Does not state how many people were in quit group and continuing smoking group at baseline or follow-up. No response to request for additional data.
McMahon SD, Jason LA, Salina D. Stress, Coping, and Appraisal in a Smoking Cessation Intervention. Anxiety Stress and Coping 1994;7:161-71.	Data reported in McMahon (1998)
Pertschuk MJ, Pomerleau OF, Adkins D, Hirsh C. Smoking cessation: The psychological costs. Addictive Behaviours 1979;4:345-8.	Frequency of event outcome.
Prochaska JJ, Hall SM, Tsoh JY, Eisendrath S, Rossi JS, Redding CA, et al. Treating tobacco dependence in clinically depressed smokers: Effect of smoking cessation on mental health functioning. American Journal of Public Health 2008;98:446-8.	Provides only a verbal description of change in mental health. No response to request for additional data.
Sales MP, Oliveira MI, Mattos IM, Viana CM, Pereira ED. The impact of smoking cessation on patient quality of life. Jornal Brasileiro de Pneumologia 2009;35:436-41.	Not enough data to calculate SDs. No response to request for additional data.
Sanchez-Villegas A, Serrano-Martinez M, Alonso A, de Irala J, Tortosa A, Martinez-Gonzalez MA. Role of the tobacco use on the depression incidence in the SUN cohort study. Medicina Clinica 2008;130:405-9.	Binary outcome.
Schwartz JL, Dubitzky M. One-year follow-up results of a smoking cessation program. Canadian Journal of Public Health 1968;Revue:161-5.	Narrative description and a p-value only. Could not locate either authors' contact details to request additional data.
Segan CJ, Borland R, Wilhelm KA, Bhar SS, Hannan AT, Dunt DR, et al. Helping smokers with depression to quit smoking: collaborative care with Quitline. Medical Journal of Australia 2011;195:7-11.	Percentage outcome.
Siahpush M, Spittal M, Singh GK. Association of smoking cessation with financial stress and material well-being: Results from a prospective study of a population-based national survey. American Journal of Public Health 2007;97:2281-7.	Binary outcome.
Tranel D, McNutt A, Bechara A. Smoking Cessation After Brain Damage Does Not Lead to Increased Depression: Implications for Understanding the Psychiatric Complications of Varenicline. Cognitive and Behavioural Neurology 2012;25:16-24.	Not enough data to calculate mean and SD at baseline. No response to request for additional data.

Tsoh JY, Humfleet GL, Munoz RF, Reus VI, Hartz DT, Hall SM. Development of major depression after treatment for smoking cessation. Am J Psychiatry 2000;157:368-74.	Binary outcome.
Ward KD, Relyea G, Weg MWV, Sherrill-Mittleman D, Klesges R, Debon M, et al. Changes in quality of life after smoking cessation among older adults. Nicotine & Tobacco Research 2005;7(4):700.	Conference abstract. Emailed author for mean mental health scores and standard deviations. Author response: no longer has access to the data.
Wiggers LC, Oort FJ, Peters RJ, Legemate DA, de Haes HC, Smets EM. Smoking cessation may not improve quality of life in atherosclerotic patients. Nicotine & Tobacco Research 2006;8:581-9.	Does not provide baseline data for quit group or mean changes. No response to request for additional data.
Weinberger AH, Hitsman B, Papandonatos GD, Sacco KA, Vessicchio JC, George TP. Predictors of abstinence and changes in psychiatric symptoms in a pooled sample of smokers with schizophrenia receiving combination pharmacotherapy and behavioral therapy for smoking cessation. Journal of Clinical Psychopharmacology 2009;29:601-3.	Not enough data to calculate M and SD for continuing smoker group. No response to request for additional data.
Zillich AJ, Ryan M, Adams A, Yeager B, Farris K. Effectiveness of a pharmacist-based smoking-cessation program and its impact on quality of life. Pharmacotherapy 2002;22:759-65.	Not enough data to calculate SDs for quitter and continuing smoker groups. Requested additional data from author; however the author sent data of combined groups.

List of references of final studies included in the meta-analysis (N=26)

Becona E, Vazquez FL, Miguez MD. Smoking cessation and anxiety in a clinical sample. Personality and Individual Differences 2002;32(3):489-94.

Balduyck B, Sardari NP, Cogen A, Dockx Y, Lauwers P, Hendriks J, et al. The effect of smoking cessation on quality of life after lung cancer surgery. European Journal of Cardio-Thoracic Surgery 2011;40(6):1432-7.

Berlin I, Chen H, Covey LS. Depressive mood, suicide ideation and anxiety in smokers who do and smokers who do not manage to stop smoking after a target quit day. Addiction 2010;105(12):2209-16.

Blalock JA, Robinson JD, Wetter DW, Schreindorfer LS, Cinciripini PM. Nicotine withdrawal in smokers with current depressive disorders undergoing intensive smoking cessation treatment. Psychology of Addictive Behaviours 2008; 22(1): 122-128.

Busch AM, Wagener TL, Gregor KL, Ring KT, Borrelli B. Utilizing reliable and clinically significant change criteria to assess for the development of depression during smoking cessation treatment: The importance of tracking idiographic change. Addictive Behaviours 2011;36(12):1228-32.

Chassin L, Presson CC, Sherman SJ, Kim K. Long-term psychological sequelae of smoking cessation and relapse. Health Psychology 2002;21(5):438-43.

Croghan IT, Schroeder DR, Hays JT, Eberman KM, Patten CA, Berg EJ, et al. Nicotine dependence treatment: Perceived health status improvement with 1-year continuous smoking abstinence. European Journal of Public Health 2005; 15(3): 251-255.

Dawkins L, Powell JH, Pickering A, Powell J, West R. Patterns of change in withdrawal symptoms, desire to smoke, reward motivation and response inhibition across 3 months of smoking abstinence. Addiction 2009;104(5):850-8.

Hajek P, Taylor T, McRobbie H. The effect of stopping smoking on perceived stress levels. Addiction 2010;105(8):1466-71.

Kahler CW, Brown RA, Ramsey SE, Niaura R, Abrams DB, Goldstein MG, et al. Negative mood, depressive symptoms, and major depression after smoking cessation treatment in smokers with a history of major depressive disorder. Journal of Abnormal Psychology 2002;111(4):670-5.

Kahler CW, Spillane NS, Leventhal AM, Strong DR, Brown RA, Monti PM. Hostility and smoking cessation treatment outcome in heavy social drinkers. Psychology of Addictive Behaviours 2009;23(1):67-76.

Kahler CW, Spillane NS, Busch AM, Leventhal AM. Time-varying smoking abstinence predicts lower depressive symptoms following smoking cessation treatment. Nicotine & Tobacco Research 2011;13(2):146-50.

Kinnunen T, Haukkala A, Korhonen T, Quiles ZN, Spiro A, Garvey AJ. Depression and smoking across 25 years of the normative aging study. International Journal of Psychiatry in Medicine 2006;36(4):413-26.

Longmore LS, Buchanan DM, Xiao L, Jones PG, Spertus JA. Smoking cessation is associated with better mental health outcomes after myocardial infarction. Circulation 2007;115(21):E551-E552.

McFall M, Atkins DC, Yoshimoto D, Thompson CE, Kanter E, Malte CA, et al. Integrating tobacco cessation treatment into mental health care for patients with posttraumatic stress disorder. American Journal on Addictions 2006;15(5):336-44.

Manning BK, Catley D, Harris KJ, Mayo MS, Ahluwalia JS. Stress and quitting among African American smokers. Journal of Behavioural Medicine 2005;28(4):325-33.

McDermott M, Marteau T, Hollands G, Hankins M, Aveyard P. Change in anxiety following successful and unsuccessful attempts at smoking cessation: cohort study. The British Journal of Psychiatry 2013; 202: 62-67. (In press in 2012)

Mino Y, Shigemi J, Otsu T, Tsuda T, Babazono A. Does smoking cessation improve mental health? Psychiatry and Clinical Neurosciences 2000; 54(2):169-172.

Mitra M, Chung MC, Wilber N, Klein WD. Smoking status and quality of life: a longitudinal study among adults with disabilities. American Journal of Preventive Medicine 2004;27(3):258-60.

Munafo MR, Heron J, Araya R. Smoking patterns during pregnancy and postnatal period and depressive symptoms. Nicotine & Tobacco Research 2008;10(11):1609-20.

Quist-Paulsen P, Bakke PS, Gallefoss F. Does smoking cessation improve quality of life in patients with coronary heart disease? Scandinavian Cardiovascular Journal 2006;40(1):11-6.

Sarna L, Bialous SA, Cooley ME, Jun HJ, Feskanich D. Impact of smoking and smoking cessation on health-related quality of life in women

in the Nurses' Health Study. Quality of Life Research 2008;17(10):1217-27.

Solomon LJ, Higgins ST, Heil SH, Badger GJ, Mongeon JA, Bernstein IM. Psychological symptoms following smoking cessation in pregnant smokers. Journal of Behavioural Medicine 2006;29(2):151-60.

Steinberg MB, Bover MT, Richardson DL, Schmelzer AC, Williams JM, Foulds J. Abstinence and psychological distress in co-morbid smokers using various pharmacotherapies. Drug and Alcohol Dependence 2011; 114[1]: 77-81.

Stewart A, King A, Killen J, Ritter P. Does smoking cessation improve health-related quality-of-life? Annals of Behavioural Medicine 1995; 17(4):331-8.

Vazquez FL, Becona E. Depression and smoking in a smoking cessation programme. Journal of Affective Disorders 1999; 55(2-3): 125-32.

Appendix F: Medline search strategy from inception (1955) to April 13th, 2012(via OVID)

1. SR.mp.
2. reduc$ smoking.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
3. exp "tobacco use cessation"/ or exp smoking cessation/
4. modified tobacco consumption.mp.
5. modification of cig$.mp.
6. modification of smoking.mp.
7. cigarette reduction.mp.
8. reduced cig$.mp.
9. reduction in cig$.mp.
10. Harm Reduction/
11. harm reduction.mp.
12. reduced tobacco consumption.mp.
13. tobacco consumption.mp.
14. cold turkey.mp.
15. abrupt.mp.
16. smoking cessation.mp.
17. quit$ smoking.mp.
18. stop$ smoking.mp.
19. give$ smoking.mp.
20. cease smoking.mp.
21. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20
22. mental health.mp. or *Mental Health/
23. *Stress, Psychological/ or psychological health.mp.
24. psycholog$.mp.
25. psychological well?being.mp.
26. *Anxiety/ or Anxiety Disorders/ or anxiety.mp.
27. anxious.mp.
28. *Depression/ or depression.mp.
29. depressive.mp.
30. exp Emotions/ or psychological process$.mp.
31. mental hygiene.mp.
32. quality of life.mp.
33. mental well?being.mp.
34. well?being.mp.
35. *"Quality of Life"/
36. affect.mp. or *Affect/
37. emotion.mp. or *Emotions/
38. psychological resilience.mp. or *Resilience, Psychological/
39. emotional problem?.mp.
40. Affective Symptoms/ or psychological disturbance?.mp.
41. 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40
42. 21 and 41
43. limit 42 to yr="1955 -Current"

Formulae used in data-extraction and synthesis

We followed the formulae and guidance provided within Chapter 7 of the Cochrane handbook for systematic reviews of interventions (8) and with the advice of statisticians.

Calculating change and it's variance using a standard formula

The standard error of the mean change over time was not reported for some studies, though it is needed for inverse-variance weighting. Where necessary it was estimated by adjusting the expression for the standard error of the difference between two independent samples to take account of within-subject correlation (9). Thus the SE of the mean change:

$$= \sqrt{1-r} \times \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

Where s_1, s_2 are the standard deviations at the two time points and n_1, n_2 are the corresponding sample sizes – notionally equal but which may differ because of data incompleteness or patient drop-out. A generic value of r = 0.312 was assumed from a secondary analysis of individual-level patient data from a randomised controlled trial of multi-component treatment for smoking cessation (10). These data were used to conduct a Pearson correlation using SPSS17. The variables input into the Pearson correlation were: Smokers' and non-smokers' anxiety scores (State-Trait Anxiety Inventory (STAI) (11) at baseline, and at six month follow-up (N=491). The baseline and follow-up scores showed a significant positive correlation (r =0.312, P<0.001). This correlation co-efficient was then entered into the above formulae.

Table D: Direction, strength and statistical significance of change in mental health between continuing smokers and quitters in 15 papers where the authors could not supply additional data

First author and year of publication	Reason for exclusion from meta-analysis	In-text quote or verbal summary of results	Summary of results
Bolliger 2002	Does not provide any data on the quit group. No response to request for additional data.	Does not report any data on individuals who quit.	Unclear
Carey 1993	Provides only a verbal description of change in mental health. The author no longer has access to the requested data.	"Quitters perceived less stress during their quit efforts than did non-quitters"	Quitters improve compared with continuing smokers. Direction of change: quitters improve. No indication of change for continuing smokers
Cohen 1990	Does not provide enough data to calculate mean change for each group. The author no longer has access to the requested data.	"relapsers had higher stress levels than those remaining abstinent at all lags. Quitters had lower stress levels that those who continued to smoke at all lags" "changes from smoking to abstinence were associated with decreased feelings of stress, whereas changes from abstinence to smoking were associated with increased feelings of stress. Stress levels did not change for subjects whose smoking status did not change.	Quitters improve in comparison to continuing smokers. Direction of change: Quitters improve, continuing smokers show no change.
George 2002	Does not present enough data for the final follow-up. The author sent additional data, however the data was not presented by smoking status.	Does not report follow-up BDI scores.	Unclear
Hughes 1991	Extracted data. However, the mean scores were extracted from a diagram and all the SEs were assumed to be less than 1. The research team decided that the calculations were based on too many assumptions to be accurate. Author no longer had access to the data.	Does not directly discuss the change in anxiety from baseline to 6 month follow up for either group. Graphs which present the time sequence of change are presented. From the graphs it is clear that continuing smokers and quitters decreased in anxiety, however the decrease appears greater in quitters. This was not statistically assessed.	Unclear
Marqueta 2012	Not enough data to calculate M and SDs. No response to request for additional data.	Does not report 3-month STAI results for quitters and continuing smokers.	Unclear
McMahon 1998	Does not state how many people were in quit group and continuing smoking group at baseline or follow-up. No response to request for additional data.	Presents table of raw M and SD data but does not state how many people were in each group at any time point.	Both groups improve. Unsure if the difference is significant. Direction of change: Both groups show improvement in mental health but it was greater in quitters
Prochaska 2008	Provides only a verbal description of change in mental health. No response to request for additional data.	"Time effects for BDI-II scores indicated significant reductions from baseline levels and no difference by smoking status." "both groups exhibited a significant decline in depressive symptoms and days with emotional problems over time"	No difference between groups. Direction of change: Both groups show improvement in mental health.
Sales 2009	Not enough data to calculate M SDs for the continuing smoker group. No response to request for additional data.	"quitters presented a statistically significant improvement in vitality (positive affect) and the mental component summary ($p<0.05$)" "the quitters presented higher post-intervention scores than did the non-quitters for the vitality and mental health domains, as well as for the mental component summary"	Quitters improve compared with continuing smokers. Direction of change: quitters improve, no indication of direction for continuing smokers
Schwartz 1968	Narrative description and a p-value only. Could not locate either author's contact details to request additional data.	"both before and during treatment, successful subjects scored less anxious on the mood scale than persons who did not change ($p<0.5$)"	Quitters improve compared with continuing smokers.

			Direction of change: quitters improve, no indication of direction for continuing smokers.
Tranel 2012	Not enough data to calculate mean and SD at baseline. No response to request for additional data.	1.) At follow-up "For the BDI-II the mean scores did not differ statistically: 10.1 between quitters and 12.3 for non-quitters." 2.) "At follow-up for the BAI, the mean was somewhat higher in the non-quitters (13.0) than quitters (8.5), but the difference was not statistically significant." 3.) "we checked each group for patients who had substantially elevated scores on the depression outcomes... we found no significant between group differences: 10 quitters and 16 non quitters"	No difference between groups Direction of change: no indication of direction for either group.
Ward 2005	Conference abstract. Presents verbal description of change in for quitters and smokers. Emailed author for additional data. Author response: no longer has access to the data.	"A significant time by smoking status interaction was observed for energy/fatigue indicating that non-quitters worsened substantially over time while quitters experienced no change. " "QOL was greater in quitters compared to non-quitters for emotional well-being"	Significant difference between groups. Direction of change: quitters show no change, continuing smokers worsen.
Wiggers 2006	Does not provide baseline data for quit group or mean changes. No response to request for additional data.	"We found no effects of smoking status on patients' mental QoL"	No difference between groups. No indication of direction of change.
Weinberger 2009	Not enough data to calculate M and Ds for continuing smoker group. No response to request for additional data.	Abstinence was associated with a 2.97-U increase in BDI scores as compared with no change in BDI scores for non-abstinence participants.	Quitters increase in depression compared with continuing smokers. Direction of change: quitters worsen, no change for continuing smokers.
Zillich 2002	Not enough data to calculate SDs for quitter and continuing smoker groups. Requested additional data from author; however the author sent data of combined groups.	"In those who remained abstinent... (change in scores from) baseline to 3 months revealed statistically significant improvements for vitality and mental health"	Quitters improve. No comparison with continuing smokers. Direction of change: quitters improve, no data for continuing smokers.

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